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ABSTRACT

Designed for use by area vocational-technical schools and other vocational programs, this project developed courses of study in eight occupational areas: commercial art, appliance repair, automotive mechanics, graphic arts, building trades maintenance, building construction trades, diesel mechanics, and welding. Course-of-study development committees composed of one instructor from each of the three regions of Pennsylvania were formed for each occupational area to be developed. Each committee developed a course outline for its occupational area based on a job and trade analysis. This outline was reviewed and validated by state teachers in that occupational area before the total course of study was developed. In addition to the reviews by teachers, 100-150 tradesmen presently working in the trade reviewed the courses of study. Among factors contributing to the conduct of the project were findings that the courses of study were well received by vocational teachers throughout the state and that the cost of completing a course of study decreased every year for the five-year duration of the project. The project's three objectives--(1) provide a guide to assist beginning and established teachers in the delivery of a complete and reliable education in their occupational speciality areas; (2) continue phase II of the areas developed in the past year and expand the job and trade analysis into a complete course of study; (3) provide a base for which occupational competencies could be identified and established in the future--were considered to have been met. The questionnaire used to evaluate the courses of study and workshops is appended. (LRA)

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ED177293

FINAL REPORT

85-8001

COURSE OF STUDY PROJECT

VOCATIONAL - TECHNICAL EDUCATION DEPARTMENTAL REPORT

Volume 17, No. 18

The Pennsylvania State University
Division of Occupational and Vocational Studies
Program of Vocational-Industrial Education
103 Rackley Building
University Park, Pennsylvania 16802

Funds: $48,835

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NATIONAL INSTITUTE OF EDUCATION

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Non-Federal

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~~X~~/1/77 - 9/30/78

The purpose of this final year of the Course of Study Project was to develop courses of study in Commercial Art, Appliance Repair, Automotive Mechanics, Graphic Arts, Building Trades Maintenance, Building Construction Trades, Diesel Mechanics and Welding. These courses of study were designed for use in industrial vocational programs in area vocational-technical schools and other vocational programs throughout the Commonwealth of Pennsylvania.

Objectives

The first objective of the Course of Study Project was to develop a guide to help the beginning and established teacher deliver a complete and reliable education to those in his or her occupational specialty area.

Objective two was to continue Phase 2 of the eight occupational areas that were developed in previous years. This meant expanding the trade and job analysis into a complete study which would identify occupations and provide the necessary information, operation and example information sheets.

The third objective was to provide a base from which needed occupational competencies could be identified and established in the future.

Outcomes

The outlines for the respective courses of study were reviewed and revised by various vocational teachers and advisory committees throughout Pennsylvania.

The purpose of these reviews was to validate the materials, processes and competencies to be developed. These reviews were accomplished by the teachers' advisory committees from various area vocational-technical schools throughout the state. During telephone interviews, it was discovered that 10 to 15 advisory committees had requested to review and critique these materials. This represented 100 to 150 tradesmen who were presently working in the occupation who provided this service.

From the revised, written outlines, complete courses of study were developed. These courses of study included information, operation and job sheets, as well as a bibliography and suggested references for each, for use by the respective vocational teachers.

Audience

These courses of study will be most useful to occupational specialty teachers in various vocational specialty areas throughout the Commonwealth of Pennsylvania, particularly in area vocational-technical schools.

Publications and Available Materials

Final Report

Courses of study, when printed, will be made available through VEIN, which is based at Millersville State College, Millersville, Pennsylvania

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PREFACE

Over the past several years, the Course of Study Project has developed into an economical and efficient method of providing the beginning, as well as the experienced vocational teacher with complete guidelines to be used for group and/or individual instruction. These courses of study provide the teachers with a complete outline of the total occupational area which enables them to teach the total occupational activity, not just a specialty or high interest area.

The process for developing these courses of study involved calling upon the skills and knowledges of experienced, highly qualified, specialty area teachers dedicated to improving that particular occupational specialty. Much appreciation must be expressed to those people who devoted endless time, energy and effort to insure that the courses of study would be useful and valuable tools.

Particular appreciation is extended to Mr. James Albert and Mr. Roger Keith of the Jefferson-DuBois Area Vocational-Technical School; these men served as field coordinators of the various courses of study. Appreciation is given to Miss Jane Jantzer and Mr. Paul Albert, who served as The Pennsylvania State University coordinators, artists and technical writers for this project. Special appreciation goes to those vocational teachers who gave endlessly of their time and expertise to insure that each course of study developed all activities within the occupational specialty area.

Particular appreciation is given Mr. Robert Allen, Appliance Repair teacher at the Lehigh County Area Vocational-Technical School, Mr. J. Willard Pearson, Automotive Repair teacher at the Lebanon County Area Vocational-Technical School, Mr. Kenneth W. Smitley, Building

Construction Trades teacher at the Milton S. Hershey School, and Mr. Thomas H. Watkins, Building Trades Maintenance teacher at the Franklin County Area Vocational-Technical School.

We acknowledge the fine efforts of Mr. William Bartholomew, Diesel Mechanics instructor at the Middle Bucks Area Vocational-Technical School, Mr. Gary M. Campbell, Graphic Arts instructor at the Mount Joy Area Vocational-Technical School, and Mr. Ray W. Dinsmore, Graphic Arts instructor at the Jefferson-DuBois Area Vocational-Technical School

Appreciation is given to the Welding instructors who served on that committee. They are Mr. Joseph Genitis, of the Lehigh County Area Vocational-Technical School, Mr. Leon Powell, of the Mercer County Area Vocational-Technical School, and Mr. Paul Newton, of the Montgomery County Area Vocational-Technical School. We acknowledge the Millwork/Cabinetmaking committee members who also provided their fine expertise; Mr. H. Glen Baker, instructor at the Bucks County West Area Vocational-Technical School, Mr. Charles Breneisen, instructor at the Brownstown Area Vocational-Technical School, and Mr. Joseph Schamris, Altoona Area Vocational-Technical School.

These people provided the expertise that went into each individual course of study for a specific occupational area. We also extend appreciation to all vocational teachers throughout the Commonwealth of Pennsylvania, who assisted in evaluating the job and trade analysis which provided input for the improvement of the courses of study.

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Methods

At the beginning of the Course of Study Project, vocational directors in various area vocational-technical schools were polled to obtain suggestions as to their best instructors who possessed an understanding of curriculum development for their respective occupational areas. From this master list, the Senior Program Specialist from the Bureau of Vocational Education in Harrisburg examined state program evaluations of the various area vocational technical schools. The Senior Program Specialist then suggested one representative from each of the three regions of the state to serve as a member of the course of study development committee for each occupational area to be developed. Each committee developed a course outline for their respective occupational area. See Figure 1 for detailed steps in the development of the respective occupational outlines. This outline was developed through a job and trade analysis completed by a three-member team in each respective occupational specialty area.

These materials were then mailed to each teacher in the state in that occupational area, for review and critique. Each teacher received two copies of the publication--one for their own retention and use, and the second to be used for their comments and suggestions which would then be returned to the development team for final action. Each vocational instructor was requested to present the materials to his or her advisory committee for review and suggestion before returning them to the team for review (see Figure 2).

It was discovered during a telephone survey, that approximately 10 to 15 area vocational technical school teachers in each occupational area did in fact, send the materials to their advisory committee for

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PRODUCTION OF OUTLINE

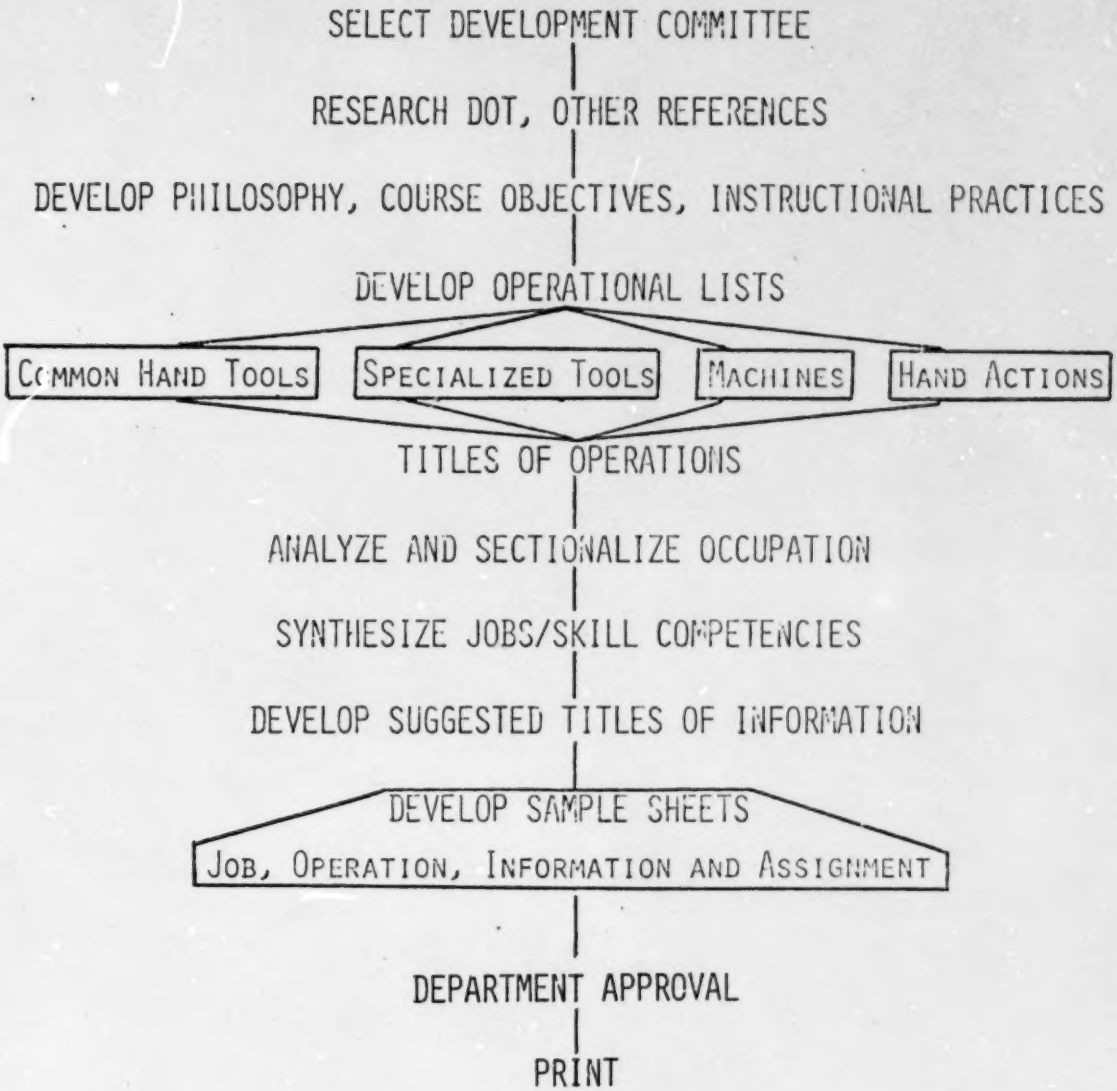

Fig. 1. Detailed steps in the development of the respective occupational outlines.

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VALIDATION OF OUTLINE

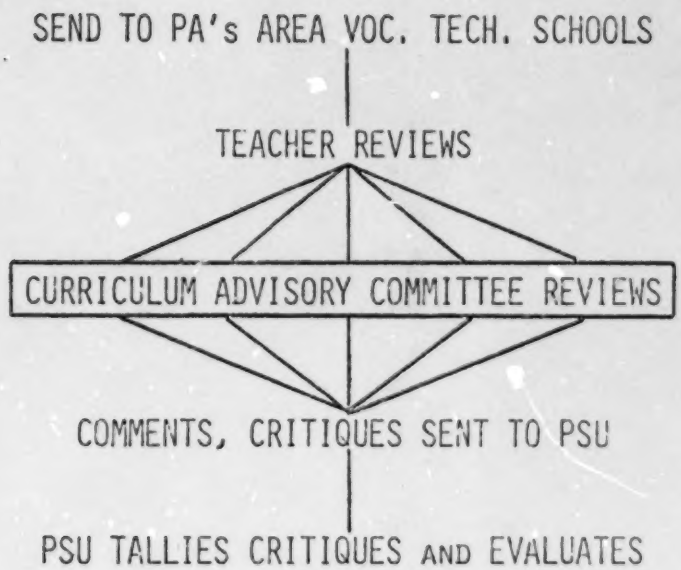
SEND TO PA's AREA VOC. TECH. SCHOOLS
TEACHER REVIEWS
CURRICULUM ADVISORY COMMITTEE REVIEWS
COMMENTS, CRITIQUES SENT TO PSU
PSU TALLIES CRITIQUES AND EVALUATES

Fig. 2. Breakdown showing presentation of course of study materials to the respective advisory committees for review and suggestion before returning them for review.

review and validation before returning them to the development team. Upon receipt of the revised outlines, the development team, along with the writing and illustrating staff from The Pennsylvania State University developed the various information necessary to involve the total course of study. This included operations (competencies) necessary in each of the occupational areas, as well as the suggested jobs necessary to accomplish and practice the various competencies.

Also included was a bibliography and reference materials, as well as tool lists and suggested information sheets. The information sheets were not developed as part of the course of study because much of the materials were already available in textbooks and trade manuals. It was determined that it would be useless and expensive to reproduce these materials in this document.

Upon finalization of each course of study, it was reviewed by the Senior Program Specialist in Harrisburg in the Bureau of Vocational Education, and then returned to The Pennsylvania State University for printing and dissemination (see Figure 3).

Overall Findings and Analysis

The following findings assisted in the total development of the Course of Study Project.

Through a telephone survey, it was determined that approximately 100 to 150 tradesmen presently working in the trade, reviewed the course outlines. Through this process the job and trade analysis was validated as it applied to practical, useful and relevant occupational practice.

It was determined that the development team structure was somewhat combersome and extensive, therefore a lead committee member was

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PRODUCTION OF COURSE OF STUDY SHEETS

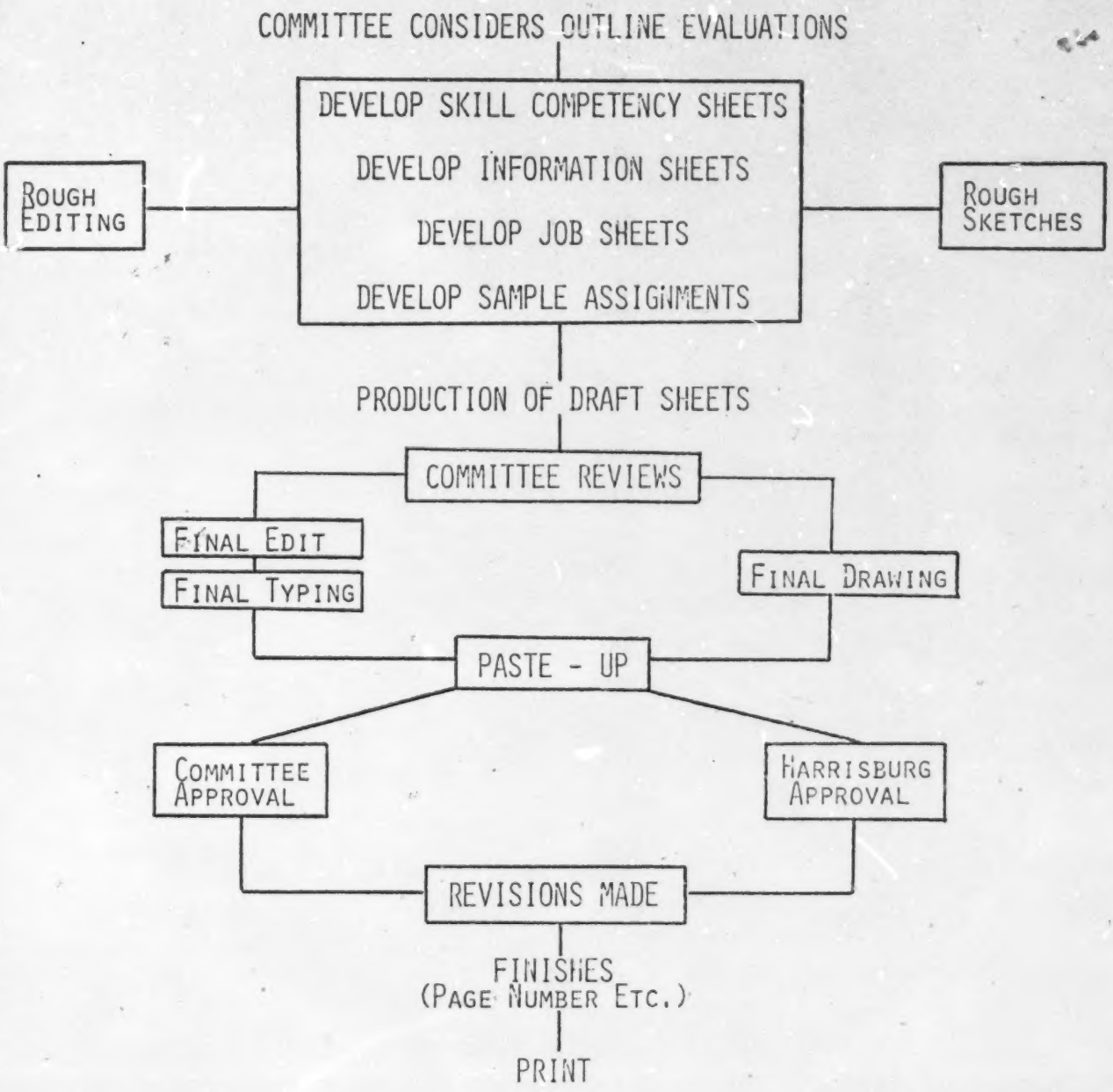

Fig. 3. Production of course of study sheets.

identified. This individual worked with The Pennsylvania State University staff in roughing out various job and operation sheets and other materials necessary for the total course of study. This work was then reviewed by each member of the committee and any necessary further revisions were made before being given to the writing and illustrating staff for development into the final materials for the course of study.

An additional finding determined through previous experience on this project was the fact that the courses of study were well received by vocational teachers in Pennsylvania. The courses of study were adapted by many school systems throughout Pennsylvania. Also, state departments of education and teacher educators from 23 different states requested these courses of study for their use and dissemination within their respective states. One course of study was adapted by an apprenticeship program. We were informed that in one state, our materials were used as the basis of an outline for a V-TECHS document that was to be developed by that state. This, of course, is contrary to good course of study development, as a course of study should be developed on a V-TECHS analysis and not a V-TECHS analysis developed on a course of study.

One other finding was the cost for production of materials over the five year duration of the course of study project. Table 1 represents the actual production of the courses of study over the five year period. During the first year of the project, considerable time was spent determining the actual process of the activities. Therefore, only one course of study was actually developed this year. The second year of the project presented additional problems, and revisions were made on

Production Years for Courses of Study

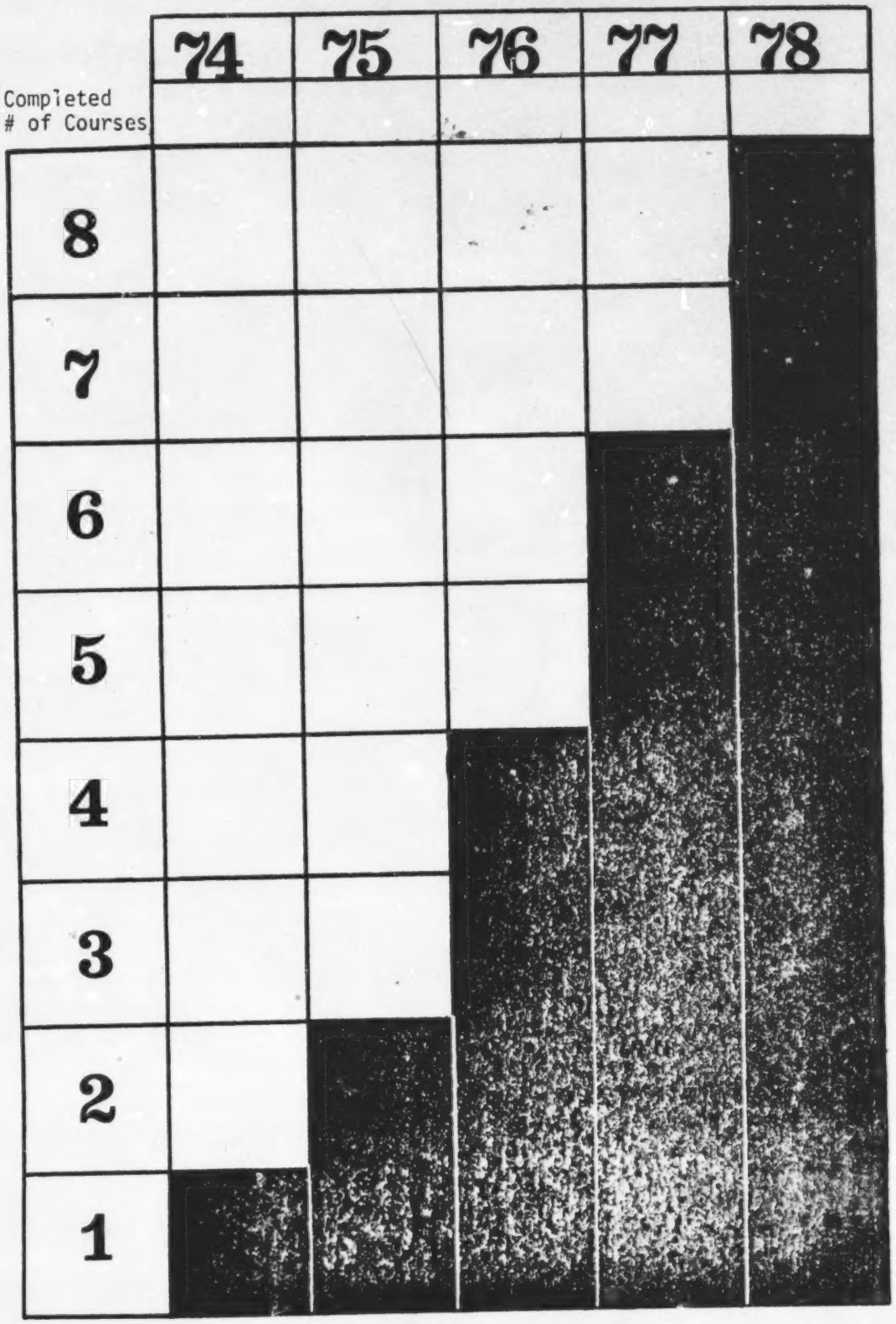

Table 1

Production Years for Courses of Study

previously developed outlines; only two new courses of study were developed. The third year, four courses of study were developed, and in the fourth year, six courses of study were developed. In the fifth and final year of the project, eight courses of study were developed and completed.

Table 2 presents a breakdown of costs for the Course of Study Project. The first course of study was actually the most expensive to produce, as it was completed at a total cost of $80,000 to develop it in its entirety. The second course of study completed, utilized the skills and knowledges gained while producing the first study; this was completed at a cost of $40,000. The third course of study still drew on previously determined skills and knowledges and was completed at a further cost reduction of $30,000. Additional reductions in cost were accomplished and the fourth course of study was completed for $15,000. The fifth course of study was completed at an approximate cost of $8,000. The remaining courses of study were developed using all previously determined processes, and with additional refinements, were produced at approximately $6,000 to $6,500 per course of study. Until the 1977-1978 year, these costs included printing.

The Course of Study Project called for development of a course outline, a job and trade analysis, and validation of the materials as determined by the job and trade analysis. This was accomplished by calling upon the expertise of 100 to 150 tradesmen and teachers of each occupational specialty area. It was also necessary to provide a complete development of operation, job, and sample information sheets, as well as tool listings and a bibliography for each course of study.

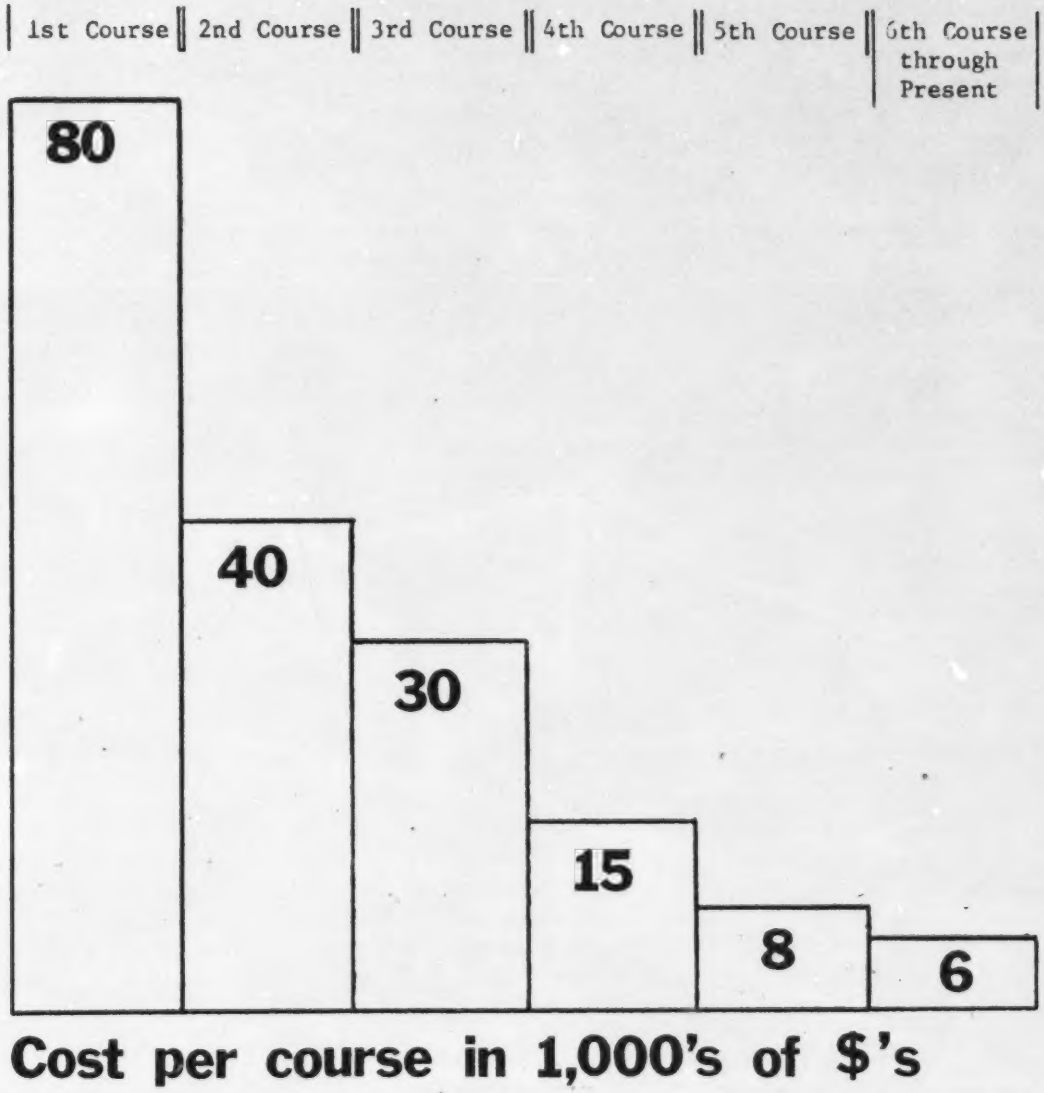

Table 2

Course of Study Cost Production Table

Analysis and Findings As Per the Objectives

Objective one was to provide a guide to assist the beginning and established teacher deliver a complete and reliable education in his or her occuupational specialty area.

As previously described, a guide was developed for each occupational area represented in this course of study project. This guide was a job and trade analysis which developed an outline for the course of study. This outline was then sent to each occupational specialist in the state, and in conjunction with the specialist's advisory committee, they would evaluate and critique the material and return it to the review team for further development.

The second objective was to continue Phase II of the eight occupational areas that had been developed in the past year; also to expand the trade and job analysis into a complete course of study which would identify occupations and include information and operation sheets. These operation sheets (competencies), job sheets and suggested information sheets were constructed by development teams. The technical illustrator and technical writer, both from The Pennsylvania State University, developed the information into highly illustrated materials and the written information was then developed into behavioral language. This material was developed so that a student would be taken from the least complex activity into the most complex situation. Each job depended on a set number of competencies and these were repeated as often as necessary to ensure complete understanding and confidence in a particular skill. See Appendix A for evaluations of materials that were previously completed by practicing occupational specialty teachers and administrators.

Objective three was to provide a base for which occupational competencies could be identified and established in the future.

The Course of Study Project was designed to provide this guide. See Appendix B for possible uses of the courses of study that were developed to assist the occupational specialty teacher in using and expanding the materials.

Complete courses of study were developed in the following occupational areas: Commercial Art, Appliance Repair, Automotive Repair, Graphic Arts, Building Trades Maintenance, Building Construction Trades, Diesel Mechanics and Welding. These courses of study are now in the finalization stages and are being reviewed by the Senior Program Specialist for Trade and Industrial Education, for further action and printing.

Outcomes

The goal of the Course of Study Project running from July 1977 to September 1978, called for the development of eight courses of study for less than $50,000. These courses of study are suggested guides for which the vocational teacher, after reviewing and/or revision by his or her advisory committee, can develop the required entry level competencies in their respective vocational students. All objectives were met in this project, but if time had not presented constraints, additional work could have been done in these eight courses of study to provide further improvements.

An additional outcome from past course of study development has been the tremendous response from other states, as well as occupational and career development teachers from other occupational areas. An

example of this is the Small Engine course of study and its very welcome receipt by vocational agriculture and industrial arts teachers throughout the Commonwealth. They intend to use these materials as part of their total course of study.

One outcome not met was the fact that the committees had developed 10 additional course outlines and had them reviewed and validated. However, funding was no longer available to continue the Course of Study Project.

Recommendations

1. It is recommended that the materials developed through this Course of Study Project, when approved by the Senior Program Specialist for Trade and Industrial Education, be printed and disseminated so that the vocational specialty area teachers will have access to the results of this study.

2. It is recommended that the materials developed in this study be compared with other curriculum materials such as V-TECHS and the Oklahoma Consortium, to determine its usefulness by the vocational teachers and administrators throughout the Commonwealth.

3. It is recommended that the RCU, through the use of unbiased and impartial evaluators, evaluate these curriculum materials, through the users, teachers and administrators, to determine the usefulness for future curriculum development, of the past and present courses of study.

Dissemination

The results of this study are now in the hands of the Senior Program Specialist for Trade and Industrial Education. These eight courses of study should be finalized and printed for dissemination through

Vein at Millersville, for use by various vocational specialty area teachers. The VEMIS report for 1976, identified the following numbers of occupational teachers and their respective occupational specialty areas.

Commercial art	41
Appliance Repair	30
Automotive Mechanics	112
Graphic Arts	72
Building Trades Maint.	45
Building Trades Const.	13
Diesel Mechanics	16
Welding	64
	393

This represents a total of 393 specialty area teachers who can benefit from the use of these materials and improve the quality of their program and upgrade the teaching of their students over the next five years. Considering the number of students each teacher might have, it is easy to conceive that many thousands of students will benefit from this activity.

Not only are specialty area teachers receiving these materials, but agriculture, distributive education, industrial arts teachers and many other vocational teachers use these materials as part of their curriculum. This would expand the benefit of these courses of study by an additional several thousand students over the next five year period.

APPENDIX A

RESULTS FOR PDE'S COURSE OF STUDY PROJECT

Results for PDE's Course of Study Project

I. Questionnaire to evaluate Courses of Study and Workshops held in Somerset and Mercer Counties. (April 19, and 20 1977)

II. Questionnaire sent out May 19, 1977.

III. 34 Questionnaires returned out of a total 46 sent out = 73.9% returned.

DIRECTIONS: You are to check YES or NO for all items except Item Number 7 and circle a numerical rating for all items 1 through 9.

1 - 0% (low)
2 - 25% (less than average)
3 - 50% (average)
4 - 75% (better than average)
5 - 100% (high)

I. Represented groups were:

Electrical	- 15	Commercial Art	- 1
Plumbing	- 6	Machinist	- 1
Small Engine	- 1	Auto Diesel	- 1
Auto Body	- 1	Printing	- 1
Agriculture	- 1	Administrator	- 1
Sheet Metal	- 1		

II. Courses of Study at the workshop were Electrical, Plumbing and Small Engine.

			How Extensive					
1. In this course of study:	Yes	No	1	2	3	4	5	No Response
A. all of the material I expect my students to complete is covered.	15	11	1	0	3	13	4	7
B. the material covered would be useful for my course.	27	2	2	3	3	11	8	5
C. the material covered would be useful for only a beginning teacher.	10	17	1	2	1	3	5	4
D. the material covered would require modification for my use.	23	4	2	4	11	5	1	7
E. jobs can be used in our shop.	26	1	1	2	2	9	9	7
F. objectives meet school requirements.	28	1	0	0	3	10	12	5
G. objectives meet the labor market being served.	27	1	0	0	6	12	6	6
H. operations cover an adequate span of material.	27	2	0	2	4	12	6	5
I. information lesson titles are of sufficient scope.	25	2	0	1	6	11	8	6
2. I would change the sequence of divisions for my use.	17	10	4	4	11	1	2	7
3. I would change the jobs.	18	9	5	6	6	7	1	7
4. I would change the operations.	13	13	6	6	4	4	1	8

	Yes	No	How Extensive 1	2	3	4	5	No Response
5. I would change the information lesson titles.	11	16	2	6	5	4	2	7
6. Once adapted to local needs, I will use this course of study for my curriculum.	23	4	2	1	4	10	1	5
7. I would rate this course of study.			1	1	3	16	8	0
8. The workshop attended (Somerset or Mercer) was useful.	34	0	0	2	7	14	6	1
9. The material provided is adaptable for special needs students.	28	4	1	4	7	11	4	3

10. Future funding for this type of project is now being questioned in Harrisburg. Would you please comment on the need, either negative or positive, for this material.

PLEASE SEE ATTACHED PAGES FOR COMMENTS SUBMITTED.

A systematic approach to career development has been developed. These curriculums are of unprecedented value to Vocational Educational teachers throughout the state, even with the adaption of local need, it is a ground base that has never been available to date. Continued development of courses not yet completed are very important; up-dates and modification after instructional use, or a "de-bugging" for utilization seems practical. I would encourage all involved to maintain the curriculum development at whatever cost, until the core subjects at least are complete. Perhaps to a lesser degree for modifications.

A more varied choice of material is needed.

---

(1) Material is good

(2) Inservice workshops should be provided for all instructors having or about to receive course material.

(3) Course material should be provided to schools that teach different course materials as a part of their one course. Example in our school-Building Maintenance teaches as a part of its program:

a. Small Engine Repair
b. Welding
c. Woodworking
d. Electrical
e. Plumbing
f. Sheet Metal
g. Some Machine Shop operations
h. Masonry

In those areas that are regular day school programs, we can receive the course materials internally. In course areas that are not offered as regular programs, Small Engine, Plumbing, Sheet Metal, we must remain with our own materials, since course materials will not be sent to our school.

Funds should be made available for this type of project.

Every instructor should attend a similar workshop, so as to standardize the philosophy of C.B.E.

Due to different reasons I believe the material will be set aside and not used. Most instructors do not know how to use it effectively, the cost of operating a class using this material is very high, and reproduction of the sheets for each student is limited in most school. I feel these problems should be pursued as well as suppling a starting point. This would involve taking of about the first three (3) units and expanding them to completion by different instructors, thus having different live examples of how the material is used. The cost can be controlled by the instructor writing the job sheets. Printing of the material is a problem that would need checking at each school, possible committee could handle this. This type of materials is very good if it can be put to use.

The courses of study which were presented were not in my field of specialization. I will be able to make a more conclusive decision when the course of study for Electronics Technology is available.

I do feel there is a tremendous need for this type of material (Course Outlines, Job Sheets, Information Sheets, etc.) because it not only standardizes courses, but relieves the instructor from the time consuming work of creating this (approx. 3-5 years). Also there is an advantage of having veteran Vocational Techn-cal Instructors compile the information.

I may be slightly critical in the above evaluation but only from the point of view that it is not extensive or diversified enough; however, what there is could be useful.

Some older teachers may not want it. But is should be a must for new or young teachers and or programs it is the best so far.

This material can only be of use if placed in the hands of the students. Reproduction at a local school is too costly.

I believe that there is a considerable need for this material in order to:

1. Standardize some of the educational processes in the trades.

2. Give the instructor who needs it, a better sequence of operations, jobs, etc.

I also feel it would be a help to any teacher in a particular trade, even though he may want or have to tailor it to fit his needs.

I feel that the material in this course of study is accurate, up-to-date and of great value to the instructor. This material covers areas that the instructor may over look. Other instructors in this school who have seen my copy are writing for their course of study.

I, myself, think taht the time and money spent of this type of inservice would benefit both the instructors and students at the per the minimal time involved.

I feel we must continue to develop future courses and refine those completed. Too many instructors are teaching by jobs only, with no assurance that the basic skills are actually being learned. The courses of study that have been developed have an organized and purposeful flow to them, something that we all can use, with the onset of competency based curriculum, these materials will be invaluable.

During our brief examination of the Plumbing Instructional Material, I believe it to be excellent and would be very useful and adaptable to my Course of Study. I did not receive the Plumbing Course of Study no do I have access to it.

Date Returned: May 31, 1977

I would suggest that in the future only those shop instructors be invited that the lesson plan is completed for, and that he would have a copy to study and evaluate at the workshop.

Educators have a need for vocational courses of study. The state should continue the project. Why should each school incur the cost of developing courses of study? The approach being used reduces the over-all cost.

The material presented was for Electrical not Electronics, therefore not applicable to my specific program.

Although a similar program written for Electronics would be of some value to me, it would be of most value to an instructor or school not having a course of study.

A.W. Beattie does not teach Electrical, Plumbing or Small Engine. I am looking forward to the curriculums that are being developed in areas which we are involved.

I feel the need for this type of material is very great. I would very much enjoy another workshop of this type and would love to see some work along these lines for Cosmetology. I would be very willing to help along this line if needed. Thanks for an opportunity to view other instructional materials.

Date Returned: June 1, 1977

There is a very positive, crying need for this material for most courses.

Tradesmen teaching these courses, in many cases are not experienced in preparing course plans, lesson plans, lesson outlines, etc. They need this framework with which to work, especially new teachers.

I sincerely hope this work may continue - for the overall good of Vocational Education.

Date Returned: June 2, 1977

I believe these workshops would be valuable to the teachers. I would like to see more time spent on the presentation of the information.

Date Returned: June 7, 1977

I found the workshop to be beneficial "information wise" as well as useful for beginning teachers as well as old hands. I would like to see this type of workshop conducted for other diciplines besides those listed on this instrument.

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Material is very helpful, well covered course of study. Would be especially helpful for a beginning teacher.

Date Returned: June 13, 1977

This material is very good. Some changes may be made in method teaching the student due to material on hand.

Date Returned: June 20, 1977

This type of project is very useful especially for beginning teachers.

I believe that there is a definite need for this type of material and the workshops that accompany them. Especially for beginning teachers. Hope that Harrisburg will continue to support the project.

The material covered is very good and can be adapted to fit most Plumbing curriculum.

Very much needed project. Material can be used as printed or as a guideline to be adapted very easily. Favorable comments were heard at the workshop concerning the project.

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APPENDIX B

USING THE COURSE MATERIAL

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USING THIS COURSE MATERIAL

The usable content of this course material consists of skill competency sheets (yellow) and job sheets (white). All of these sheets were developed by a committee of vocational instructors in your trade area. Notice that the SC sheets are simply written and highly illustrated. These sheets demonstrate the manipulative handling of tools and materials that make up the doing part of your trade. Totally, all of the skill competency sheets contained here represent almost all of the basic skills that your students will need to become competent in his trade. This collection of SC sheets is the stable part of any trade or course, we may have missed some, and new ones will gradually appear over a period of time. The sequence that the SC sheets occur in is based on the organization of the Job Sheets. Notice that Job #1 refers to SC sheet #1, Job #2 may refer to SC #1 and SC #2. This cummulative re-use of the skill competencies continues throughout the entire Job Sheet collection. After a number of jobs have insured that the student has been sufficiently exposed to a SC, no further reference to that SC may be made.

The Job sheets are arranged in an order that gradually exposes the skill competencies, one at a time. The purpose of the Job sheet is to insure the introduction of each operation or skill competency in a controlled manner.

We realize that the number of Job Sheets presented here are not enough to provide a full two or three year course, but, look at this group of Jobs as a framework that can be added to, by you, to meet your local needs. You may decide to design two or three new jobs that will be inserted between any of these prepared jobs. For example, between job #2-3 and #2-4 you could design Job #2-3A, 2-3B followed by the existing #2-4. Given time you will be able to custom design a course of study for your own needs. There will be little or no need to vary the skill competency sheets.

We have given you only a sample information sheet. The quantity and nature of information must be at the discretion of the instructor. Important and required information sheets may be inserted into the skill competency section

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in the same manner as Job Sheets are added. New job sheets can require information to be practiced.

This material is arranged in major divisions of the trade. In most cases, the material contained in the first division must be learned before progressing to the next division. The nature of some trade areas permit entry into random divisions after the first division is covered. Some divisions can be taught seperately for example; welding.

The material that is ultimately prepared by you the instructor, along with this material can be used in several ways; as follows:

(1) Individualized instruction using the sheets as the main vehicle of instruction. This use will depend on the skill competency sheets to demonstrate the skills and the Job Sheets to perscribe the required practice. The instructor will step in when help is needed. Each student will work from his own sheets at his own pace.

(2) Group instruction: The instructor will demonstrate the skill competency to a group, pacing the demonstration with the steps of the skill competency sheet while the students observe both the demonstration and the sheet. The instructor will then assign job sheets to the students that cause practice of that skill.

(3) The instructor may choose to combine both of the above methods.

Side benefits occur from this system, one being that the instructor will know at any point in time what the student has mastered. A check list of jobs completed will keep track of student progress.

Another asset found in the system is that material and supply lists can be calculated more accurately by counting directly from the job sheets multiplied by the number of students.

If this material is developed as a total individualized course the student will automatically progress to the next job; in other words the student will know at the end of today what he will be doing tomorrow.

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The collection of skill competency sheets is fairly complete, the job sheet framework is there for you to design within. The opportunity for you to create your own personalized course of study is limited only to your effort.

The job and skill competency sheets are printed on yellow and white sheets for easy reproduction

Good luck on your venture.

Comments, correspondence and communication are welcomed.

For information on production call.....

For information on technical matters call.....

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